
Decision-making under Certainty:

A condition of certainty exists when the decision-maker knows with reasonable certainty what the alternatives are, what conditions are associated with each alternative, and the outcome of each alternative. Under conditions of certainty, accurate, measurable, and reliable information on which to base decisions is available.

The cause and effect relationships are known and the future is highly predictable under conditions of certainty. Such conditions exist in case of routine and repetitive decisions concerning the day-to-day operations of the business.

Decision-making under Risk:

When a manager lacks perfect information or whenever an information asymmetry exists, risk arises. Under a state of risk, the decision maker has incomplete information about available alternatives but has a good idea of the probability of outcomes for each alternative.

While making decisions under a state of risk, managers must determine the probability associated with each alternative on the basis of the available information and his experience.

Decision-making under Uncertainty:

Most significant decisions made in today's complex environment are formulated under a state of uncertainty. Conditions of uncertainty exist when the future environment is unpredictable and everything is in a state of flux. The decision-maker is not aware of all available alternatives, the risks associated with each, and the consequences of each alternative or their probabilities.

The manager does not possess complete information about the alternatives and whatever

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information is available, may not be completely reliable. In the face of such uncertainty, managers need to make certain assumptions about the situation in order to provide a reasonable framework for decision-making. They have to depend upon their judgment and experience for making decisions.

Modern Approaches to Decision-making under Uncertainty:

There are several modern techniques to improve the quality of decision-making under conditions of uncertainty.

The most important among these are:

- (1) Risk analysis,
- (2) Decision trees and
- (3) preference theory.

Risk Analysis:

Managers who follow this approach analyze the size and nature of the risk involved in choosing a particular course of action.

For instance, while launching a new product, a manager has to carefully analyze each of the following variables the cost of launching the product, its production cost, the capital investment required, the price that can be set for the product, the potential market size and what percent of the total market it will represent.

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Risk analysis involves quantitative and qualitative risk assessment, risk management and risk communication and provides managers with a better understanding of the risk and the benefits associated with a proposed course of action. The decision represents a trade-off between the risks and the benefits associated with a particular course of action under conditions of uncertainty.

Decision Trees:

These are considered to be one of the best ways to analyze a decision. A decision-tree approach involves a graphic representation of alternative courses of action and the possible outcomes and risks associated with each action.

By means of a 'tree' diagram depicting the decision points, chance events and probabilities involved in various courses of action, this technique of decision-making allows the decision-maker to trace the optimum path or course of action.

Preference or Utility Theory:

This is another approach to decision-making under conditions of uncertainty. This approach is based on the notion that individual attitudes towards risk vary. Some individuals are willing to take only smaller risks ('risk averters'), while others are willing to take greater risks ('gamblers'). Statistical probabilities associated with the various courses of action are based on the assumption that decision-makers will follow them.

For instance, if there were a 60 percent chance of a decision being right, it might seem reasonable that a person would take the risk. This may not be necessarily true as the individual might not wish to take the risk, since the chances of the decision being wrong are 40 percent. The attitudes towards risk vary with events, with people and positions.

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Top-level managers usually take the largest amount of risk. However, the same managers who make a decision that risks millions of rupees of the company in a given program with a 75 percent chance of success are not likely to do the same with their own money.

Moreover, a manager willing to take a 75 percent risk in one situation may not be willing to do so in another. Similarly, a top executive might launch an advertising campaign having a 70 percent chance of success but might decide against investing in plant and machinery unless it involves a higher probability of success.

Though personal attitudes towards risk vary, two things are certain.

Firstly, attitudes towards risk vary with situations, i.e. some people are risk averters in some situations and gamblers in others.

Secondly, some people have a high aversion to risk, while others have a low aversion.

Most managers prefer to be risk averters to a certain extent, and may thus also forego opportunities. When the stakes are high, most managers tend to be risk averters; when the stakes are small, they tend to be gamblers.